CT-PPS Quartic Geant4 simulation tool

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Contents

Chapter 1

Hierarchical Index

1.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

Chapter 2

Class Index

2.1 Class List

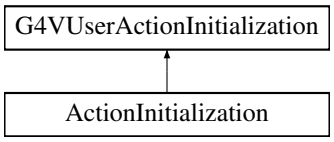
Here are the classes, structs, unions and interfaces with brief descriptions:

Chapter 3

Class Documentation

3.1 ActionInitialization Class Reference

Inheritance diagram for ActionInitialization:



Public Member Functions

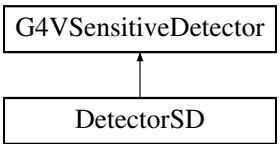
- virtual void **BuildForMaster** () const
- virtual void **Build** () const

The documentation for this class was generated from the following file:

- sw/include/ActionInitialization.hh

3.2 DetectorSD Class Reference

Inheritance diagram for DetectorSD:



Public Member Functions

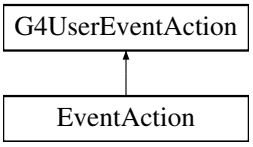
- **DetectorSD** (G4String)
- void **Initialize** (G4HCofThisEvent ∗)
- G4bool **ProcessHits** (G4Step ∗, G4TouchableHistory ∗)
- void **EndOfEvent** (G4HCofThisEvent ∗)

The documentation for this class was generated from the following file:

- detectors/include/DetectorSD.hh

3.3 EventAction Class Reference

Inheritance diagram for EventAction:



Public Member Functions

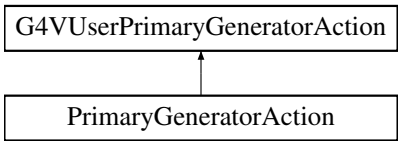
- void **BeginOfEventAction** (const G4Event ∗)
- void **EndOfEventAction** (const G4Event ∗)

The documentation for this class was generated from the following file:

- sw/include/EventAction.hh

3.4 PrimaryGeneratorAction Class Reference

Inheritance diagram for PrimaryGeneratorAction:



Public Member Functions

- void **GeneratePrimaries** (G4Event ∗)
- void **SetOptPhotonPolar** ()
- void **SetOptPhotonPolar** (G4double)
- G4bool SetInputROOTFile (G4String)
- G4bool **ProbeOneCell** (G4int, G4int, G4double)

3.4.1 Member Function Documentation

3.4.1.1 G4bool PrimaryGeneratorAction::SetInputROOTFile (G4String)

Sets the input ROOT file from which all simulated events are to be fetched in private attributes.

Parameters

in	*filename*	The ROOT file to open to fetch events

Returns

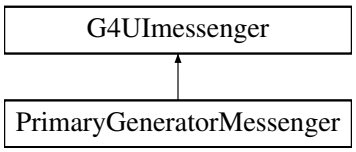
A boolean stating the success or failure of the TTree retrieval

The documentation for this class was generated from the following file:

- sw/include/PrimaryGeneratorAction.hh

3.5 PrimaryGeneratorMessenger Class Reference

Inheritance diagram for PrimaryGeneratorMessenger:



Public Member Functions

- **PrimaryGeneratorMessenger** (PrimaryGeneratorAction ∗)
- void **SetNewValue** (G4UIcommand ∗, G4String)

The documentation for this class was generated from the following file:

- sw/include/PrimaryGeneratorMessenger.hh

3.6 QuartLAnalyzer Class Reference

`#include <QuartLAnalyzer.hh>`

Public Member Functions

- QuartLAnalyzer (G4String filename="events.root")

  Default class constructor to book the TTree and its different leaves to store the information.
- void AddHitInEvent (G4Step ∗step)

  Add a new photon hit on the PMT in the events' collection.
- void FillTree ()

  Fills all branches in the TTree for one given event.
- void Store ()

  Store the TTree onto an external ROOT file.
- G4int **GetNumHitsInEvent** () const

3.6.1 Detailed Description

Analysis class intended to store into a TTree the photons kinematic information for each event.

3.6.2 Constructor & Destructor Documentation

3.6.2.1 QuartLAnalyzer::QuartLAnalyzer (G4String *filename* = "events.root")

Default class constructor to book the TTree and its different leaves to store the information.

Parameters

in	*filename*	The file name to store the output tree.

3.6.3 Member Function Documentation

3.6.3.1 void QuartLAnalyzer::AddHitInEvent (G4Step * *step*)

Add a new photon hit on the PMT in the events' collection.

Parameters

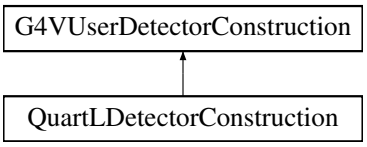
in	*step*	The Geant4 iterative step from which the photon kinematics is extracted.

The documentation for this class was generated from the following file:

- detectors/include/QuartLAnalyzer.hh

3.7 QuartLDetectorConstruction Class Reference

Inheritance diagram for QuartLDetectorConstruction:



Public Member Functions

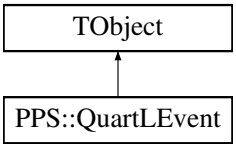
- G4VPhysicalVolume * **Construct** ()
- G4ThreeVector **GetCellCenter** (G4int station_id, G4int cell_id) const

The documentation for this class was generated from the following file:

- detectors/include/QuartLDetectorConstruction.hh

3.8 PPS::QuartLEvent Class Reference

Inheritance diagram for PPS::QuartLEvent:

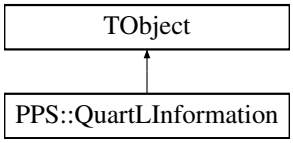


The documentation for this class was generated from the following file:

- detectors/include/QuartLEvent.h

3.9 PPS::QuartLInformation Class Reference

Inheritance diagram for PPS::QuartLInformation:



Public Member Functions

- void **SetRunId** (int ri)
- int **GetRunId** () const
- void **SetProtonEnergy** (double pe)
- double **GetProtonEnergy** () const

Public Attributes

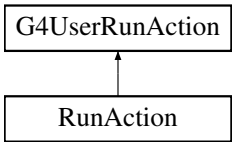
- ClassDef(QuartLInformation,
  1) private double **fProtonEnergy**

The documentation for this class was generated from the following file:

- detectors/include/QuartLInformation.h

3.10 RunAction Class Reference

Inheritance diagram for RunAction:



Public Member Functions

- **RunAction** (QuartLAnalyzer ∗analyzer=0)
- void **BeginOfRunAction** (const G4Run ∗aRun)
- void **EndOfRunAction** (const G4Run ∗aRun)
- QuartLAnalyzer ∗ GetAnalyzer ()

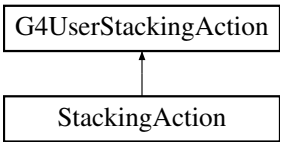
  Returns a pointer to the QuartLAnalyzer object used to collect all tracks' information in an external ROOT tree.

The documentation for this class was generated from the following file:

- sw/include/RunAction.hh

3.11 StackingAction Class Reference

Inheritance diagram for StackingAction:



Public Member Functions

- G4ClassificationOfNewTrack ClassifyNewTrack (const G4Track ∗aTrack)

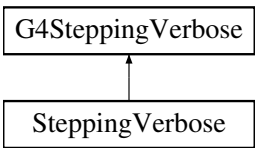
  Method to be run on every new track in the iterative tracking.
- void **NewStage** ()
- void **PrepareNewEvent** ()

The documentation for this class was generated from the following file:

- sw/include/StackingAction.hh

3.12 SteppingVerbose Class Reference

Inheritance diagram for SteppingVerbose:



Public Member Functions

- void **StepInfo** ()
- void **TrackingStarted** ()

The documentation for this class was generated from the following file:

- sw/include/SteppingVerbose.hh